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With reference to Figure 1A below, a multiplexing unit multiplexes information into a multiplexed signal for transmission in a single channel. In particular, the method applied by the multiplexing unit is applied to voice information that has already been transmitted from user devices. In the Fujino *et al.* reference, editing is performed to allow an increase in traffic through the channel and to contend with congestion. Buffering is used to absorb a difference in transmission speeds on a multiplexed side and a packet network side of a packet interface.

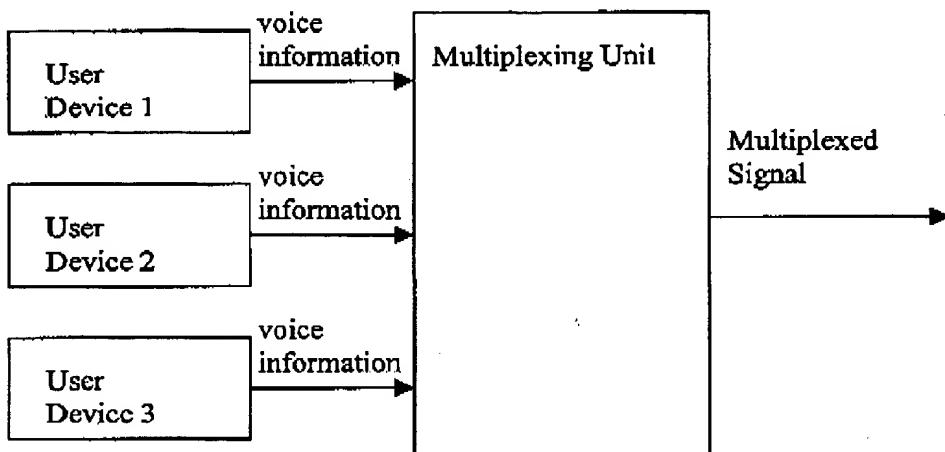


Fig. 1A

In the present application, embodiments of the invention are described in the context of a multi-access system in which multiple users share transmission resources. However, this sharing is not a "multiplexed" sharing. Rather as shown with reference to Fig. 1B, multiple transmitters independently transmit on a given transmission resource in sequence, and in this sense the transmission resource is shared. In these systems, transmission resources are allocated before transmission occurs and in conventional systems frames that are ready to be transmitted before the transmission resources are allocated have been typically discarded resulting in clipping. In the present invention, by editing and buffering information segments, clipping can be eliminated while reducing transmission delays. In contrast, in the multiplexed system of the Fujino *et al.* reference there is no disclosure or consideration of resource allocations as described above and there is no consideration of whether to transmit based on whether transmission resources have

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been allocated.

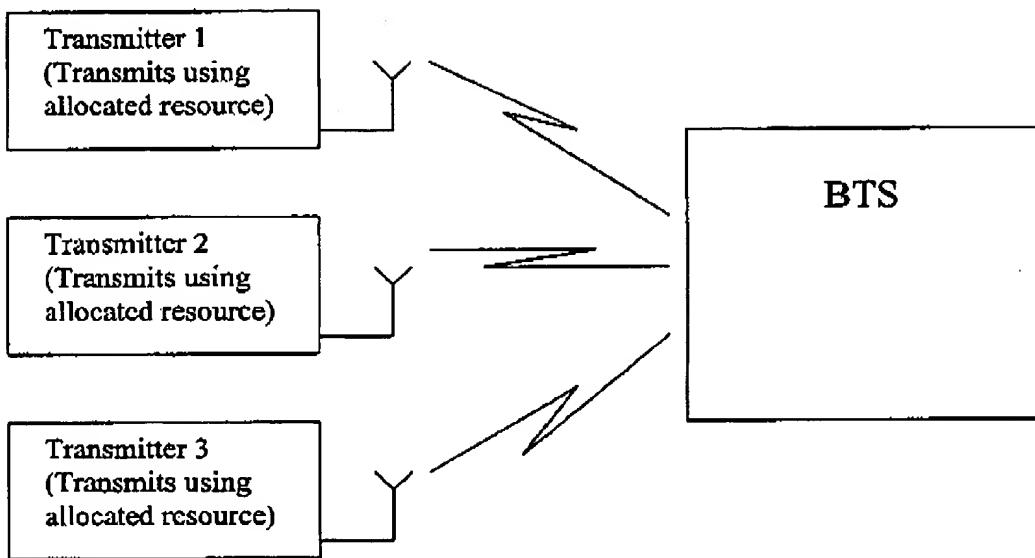


Fig. 1B

Regarding the Kanerva *et al.* reference, this reference relates to high-speed multi-channel data services (HSCSD) on a radio interface of a mobile communication system. In particular, the Kanerva *et al.* reference discloses transmission of frames of a radio link protocol (RLP) selectively only via specific subchannels in cases a maximum data transfer capacity allocated to the data link is not required. This is important because interleaving on a radio interface spreads an RLP frame over several frames. If the RLP frames were transmitted over arbitrarily selected subchannels without any consistency, many or possibly all allocated subchannels would constantly be "active" (see column 4, lines 1 to 19 of the Kanerva *et al.* reference). The Kanerva *et al.* reference discloses transmissions that "are concentrated on specific subchannels only, whereas the other subchannels allocated to a connection carry no transmission at all, or they are maintained with as little transfer as possible". "The direct benefits of a lower number of active subchannels include reduced transmittal power consumption, less temperature problems and a simpler timing of reception, transmission, and measuring neighbouring cells" (see column 4 lines 1 to 19 of the Kanerva *et al.* reference). Again, there is no consideration of whether to transmit

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based on whether transmission resources have been allocated but instead transmissions are concentrated on specific subchannels only, and the number of subchannels to be used depends on the data rate required.

Claim 1

To begin, there are three requirements for establishing a *prima facie* case of obviousness: 1) all features must be present; 2) there must be an expectation of a reasonable chance of success; and 3) there must be some suggestion or motivation in the prior art to combine the references.

Claim 1 is directed a method of transmitting in a multi-access system, and recites:

"detecting the start of an information segment being generated in real-time".

Regarding this claim feature, the Examiner has simply recited verbatim the arguments previously presented in the previous Office Action dated November 19, 2004 (the previous Office Action). As discussed in the previous response of February 19, 2004, this claim feature is not disclosed in the Fujino *et al.* reference. In particular, the Examiner has referred to element 51 (VDET) or Figure 17 of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner states "here the voice detector detects voice as the start of information segments at real time, because the communication takes place in real time". With respect, as discussed in the previous response, in column 14, lines 61 to 62 of the Fujino *et al.* reference element 51 is used for detecting silent sections by using an output from an AD (Analog-to-Digital) converting part 49. With respect, only silent sections are detected in the multiplex system of Fujino *et al.*. There is no disclosure of any detection of a start of an information segment as in the case of a multi-access system. In particular, Applicant submits that detecting silent sections does not equate to detection of a start of an information segment. For example, in the case when two consecutive silent sections are detected, the detection of the first silent section does not imply the detection of the start of an information segment. Instead, in this case what comes next is another silent section.

Claim 1 also recites:

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"editing and buffering the information segment or a first representation thereof to produce a second representation".

Regarding this claim feature the Examiner has once again recited verbatim the arguments provided in the previous response without addressing the Applicant's discussion of this claim feature in the previous response. In particular, the Examiner has referred to columns 13, lines 18 to 36; and column 25, lines 12 to 48 of the Fujino *et al.* reference as disclosure for this claim feature. The passage in column 13, lines 18 to 36 refers to a multiplexing method where voice coded information is split for transmission into core bits and supplementary bits. In column 25, lines 24 to 28, with reference to Figure 36 "a header attacher 141 attaches a packet header to a data packet received from the multiplexer side. After being assembled, packets are outputted to the packet network side through a speed difference absorption buffer 142". The Examiner is equating buffered packets with "a second representation", and as discussed in the previous response and as will be discussed below, the contention of such equivalence is inappropriate.

Finally, claim 1 recites:

"wherein the editing and buffering is done to compensate for transmission allocation resource delays".

With respect, the Examiner has not even addressed this claim feature of claim 1, and Applicant submits that this feature is not disclosed by the cited references. In particular, as discussed above the Fujino *et al.* reference has nothing to do with transmission resource allocation and therefore has nothing to do with compensating for transmission resource allocation delays. With regard to the Kanerva *et al.* reference, as discussed above what is being allocated are subchannels; however, there is no disclosure of any editing and buffering being done to compensate for allocation delays in providing the subchannels. In both references there is no concept of resource allocation delays. As such, there can be no disclosure of any editing or buffering being done to compensate for transmission resource allocation delays. Furthermore, as discussed above, the Examiner has equated the "second representation" with packets that are outputted to a packet network side through a speed difference absorption buffer 142. However, there is no disclosure of these packets being buffered to compensate for transmission allocations

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delays, and as such, the above equivalence is inappropriate.

As such, requirement 1) for a *prima facie* case of obviousness is not satisfied.

Regarding requirement 2) of the *prima facie* case, since the claim features of claim 1 are not all disclosed by the cited references there is no reason to believe that there are any possible combinations of the teachings of the cited references that produce the desired result of the invention as claimed in claim 1, and this requirement is also not satisfied.

Regarding requirement 3) of the *prima facie* case, claim 1 also recites:

"after transmission resources have been allocated, starting to transmit the second representation".

Regarding this claim feature, the Examiner states:

'Fujino does not expressively teach, "after transmission resources have been allocated, starting to transmit the second representation". However, Kanerva teaches "after transmission resources have been allocated, starting to transmit the second representation" (Abstract, col. [col.] 9, lines 1-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Kanerva's teaching in the invention of Fujino because Kanerva teaches in his invention [introduce] to reduce transmission power consumption, less temperature problems and simpler timing of reception (col. 4, lines 15-22)'.

With respect, in the Abstract and column 9, lines 1 to 41 of the Kanerva *et al.* reference what is being allocated are subchannels; however, modifying the Fujino *et al.* reference to introduce "after transmission resources have been allocated, starting to transmit the second representation" does not provide the advantages referred to by the Examiner which are to reduce transmission power consumption, less temperature problems and simpler timing of reception. Instead, those are advantages introduced when using only a subset of the subchannels. In other words, the Examiner is suggesting a modification to the Fujino *et al.* reference stating advantages as motivation to combine the references; however, the modifications proposed do not bring about the advantages stated.

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Furthermore, the Fujino *et al.* and the Kanerva *et al.* references solve completely different problems from each other and from the present invention as claimed in claim 1, and Applicant submits that one of skill in the art would not look to the teachings of the Kanerva *et al.* reference to modify the Fujino *et al.* reference to produce the desired result of the invention as claimed in claim 1.

As such, there is no suggestion or motivation in the prior art to combine the references, and requirement 3) for a *prima facie* case of obviousness is also not satisfied.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 1.

Claims 2 to 6, 13, 14, and 22 to 24

Each one of claims 2 to 6, 13, 14, and 22 to 24 depends directly or indirectly on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 2 to 6, 13, 14, and 22 to 24.

Claim 12

Claim 12 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 12 recites:

"upon detecting the start of the information segment, the method further comprises immediately requesting transmission resources to transmit the information segment".

Regarding this claim feature, the Examiner has once again recited verbatim arguments that were found in the previous Office Action without addressing the comments made by the Applicant in the previous response.

In particular, the Examiner has referred to column 14, lines 47 to 62 of Fujino *et al.* as

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disclosure for this claim feature and states "reads on "a call detector (CDET) 46 for detecting a call through monitoring by SS (Signal-Send) and SR (Signal-Receive) signals". With respect, this passage referred to by the Examiner discloses the structure of the apparatus of Figure 17, and Applicant submits that there is no disclosure of "upon detecting the start of the information segment, immediately requesting transmission resources to transmit the information segment". In particular, as indicated by the Examiner the call detector 46 is used for detecting a call through monitoring by SS and SR signals. With respect, this is not the same as "upon detecting the start of the information segment, requesting transmission resources to transmit the information segment". Furthermore, as discussed above with reference to claim 1, in Fujino *et al.* there is no disclosure or considerations of transmission resources.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 12.

Claim 15

Claim 15 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 15 recites:

"before transmitting the second representation, the method further comprises passing the second representation through a frame erasure concealment unit to prevent corruption".

Regarding this claim feature, the Examiner has once again simply restated the arguments previously proposed in the previous Office Action and the Applicant had addressed this claim feature in the previous response. In particular, the Examiner has referred to column 13, lines 18 to 36 of the Fujino *et al.* reference as disclosure for this claim feature and states "discarding supplementary bits necessarily deteriorates sound quality, but permits transmission of core bits, thus ensuring the minimum sound quality provided by core bits".

The discarding step referred to by the Examiner forms part of a multiplexing process described in column 13, lines 18 to 36 of the Fujino *et al.* reference. With respect, the Examiner has already referred to this passage (the multiplexing process) for the editing and buffering step

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of base claim 1 which is to produce a second representation. The Examiner is now using the same step as disclosure for "passing the second representation through a frame erasure concealment unit to prevent corruption". With respect, Applicant submits that it makes no sense to refer to the same step for: 1) producing a second representation; and 2) and passing the second representation through a frame erasure concealment unit as these are two distinct steps.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 15.

Claim 16

Claim 16 depends on claim 15 and should be allowed for the same reasons as discussed above with reference to claim 15.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 16.

Claim 25

Claim 25 depends on claim 24 and should be allowed for the same reasons as discussed above with reference to claim 24. Furthermore, claim 25 should also be allowed for the same reasons as discussed above with reference to claim 15.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 25.

Claim 26

Claim 26 depends on claim 25 and should be allowed for the same reasons as discussed above with reference to claim 25.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(b) rejection of claim 26.

Claim 27

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Claim 27 is directed to an apparatus to transmit information in a multi-access system, and recites:

"a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment".

As discussed above with reference to claim 1, in the cited references there is no concept of resource allocation delays. In fact, in the cited references there is no disclosure of any waiting for allocation of resources. As such, there can be no disclosure of "a buffer operable to buffer each shortened information segment until transmission resources are allocated". As such, requirement 1) for a *prima facie* case of obviousness is not satisfied.

Regarding requirement 2), since the claim features of claim 27 are not all disclosed by the cited references there is no reason to believe that there are any possible combinations of the teachings of the cited references that produce the desired result of the invention as claimed in claim 27, and this requirement is also not satisfied.

Regarding requirement 3), as discussed above with reference to claim 1, the Fujino *et al.* and Kanerva *et al.* references solve completely different problems from each other and from the present invention as claimed in claim 27, and Applicant submits that one of skill in the art would not look to the teachings of the Kanerva *et al.* reference to modify the Fujino *et al.* reference to produce the desired result of the invention as claimed in claim 27.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 27.

Claims 28, 29, and 33 to 38

Each one of claims 28, 29, and 33 to 38 depends directly or indirectly on claim 27 and should be allowed for the same reasons as discussed above with reference to claim 27. The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 28, 29, and 33 to 38.

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Claim 39

Claim 39 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 39 recites:

"monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow".

The Examiner has referred to a buffer RAM (Random Access Memory) of Figure 59A of the Fujino *et al.* reference as disclosure for the above claim feature. The Examiner has simply identified a buffer in Figure 59A; however, the Examiner has not identified any text in the Fujino *et al.* reference indicating "monitoring a state of a buffer containing the information segment or the first representation and performing the editing so that the buffer does not overflow". In particular, the description of Figure 59A is given in column 35, lines 4 to 30 of the Fujino *et al.* reference and there is no such disclosure in that passage.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 39.

Claim 40

Claim 40 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 40 recites:

"performing the editing at least long enough to compensate for a resource acquisition time".

The Examiner has referred to column 7, lines 43 to 51 of the Fujino *et al.* reference as disclosure for this claim feature. With respect, this passage discloses how "only side information in a core information part is transmitted for silent sections, while total data including the supplementary information part are transmitted for speech sections. During discarding because of congestion, lighter bits in the supplementary information part are sequentially discarded, thus improving the communication efficiency and permitting compressed transmission of various control data".

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With respect, the discarding referred to in this passage is not disclosed as discarding to compensate for a resource acquisition time. As such, the passage referred to by the Examiner does not disclose the above claim feature.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 40.

Claim 43

Claim 43 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 43 recites:

“requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays”.

The Examiner has referred to column 6, lines 1 to 25 of the Kanerva *et al.* reference as disclosure for this claim feature. With respect, this passage refers to how in a system, “the data link is established between a mobile station (MS) network terminal TAF (Terminal Adaptation Function) 31 and a network adapter IWF (Interworking Function) 41 (see Figure 1 of the Kanerva *et al.* reference) in the fixed network. The data link is a circuit-switch connection which reserves one (or more) traffic channel(s) from the radio interface for a duration of a connection”.

In particular, what are being reserved here are traffic channels and there is no reference to any resource allocation delays. As such, there is no disclosure of any requesting the transmission resources from the multi-access system and receiving a resource allocation from the multi-access system after the resource allocation delays. Instead, the traffic channels are either all used or a subset of the traffic channels is used.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 43.

Claims 41, 42, and 44

Each one of claims 41, 42, and 44 depends on claim 32. However, the Examiner has not

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rejected claim 32 on the basis of the Fujino *et al.* reference and the Kanerva *et al.* reference but instead the Examiner has cited the Fujino *et al.* reference and Applicant's admitted prior art against claim 32. As such, the Examiner's rejection of claims 41, 42, and 44 is inappropriate.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 41, 42, and 44.

Rejection of Claims 7 to 11

In paragraph 6 of the Detailed Action, the Examiner has rejected claims 7 to 11 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of the Kanerva *et al.* reference, and further in view of the book entitled "Wireless Communications Principles and Practice" (Rappaport). Given below is a discussion on how claims 7 to 11 are patentable over the Fujino *et al.*, Kanerva *et al.* and Rappaport references.

Claim 7

Claim 7 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. In particular, the Examiner's rejection of claim 7 is based on the false premise that the Fujino *et al.* and Kanerva *et al.* references disclose all of the features of base claim 1, and Applicant submits that the Rappaport reference fails to disclose the features of base claim 1 that the Fujino *et al.* and Kanerva *et al.* references fail to disclose. As such, requirement 1) for a *prima facie* case of obviousness cannot be satisfied.

Requirement 2) is also not satisfied for the same reasons as discussed above with reference to claim 1.

Furthermore, regarding requirement 3), as discussed above with reference to claim 1, claim 1 recites "editing and buffering...to produce a second representation, and claim 7 recites:

"wherein the buffering and editing comprises buffering and then editing".

Regarding this claim feature the Examiner has simply recited verbatim the previous arguments found in the previous Office Action and has not addressed the Applicant's discussion

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of this claim feature in the previous response. In particular, in the Fujino *et al.* reference it makes no sense to perform the buffering step referred to by the Examiner and then perform the editing step referred to by the Examiner. In particular, in his rejection of claim 1 the Examiner has referred to element 140 in which there is a speed difference absorption buffer 142 for the buffering step (see Figure 35 of the Fujino *et al.* reference). As shown in Figure 36 of the Fujino *et al.* reference, the buffering is provided by the speed difference absorption buffer 142 which, as discussed above, is used as a transmission holding buffer. In particular, as disclosed in column 25, lines 36 to 42 the speed difference absorption buffer 142 absorbs a difference between multiplexed frames inputted at speed V₁ from a multiplexer side and a transmission speed V₂ to a packet network side. Applicant submits that there is no disclosure of a buffer operable to buffer each shortened information segment until transmission resources are allocated to produce a buffered information segment, for the same reasons as discussed above with reference to claim 1. With respect, modifying the Fujino *et al.* reference to apply the speed difference absorption buffer 142 before any editing simply makes no sense as there would be no existing multiplexed frames. As such, editing and then buffering requires a modification to the Fujino *et al.* reference which renders the system of Fujino *et al.* unworkable, and therefore this modification teaches away from the Fujino *et al.* reference. As such, requirement 3) for a *prima facie* case of obviousness cannot be satisfied.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 7.

Claims 8 to 11

Claims 8 to 11 each depend directly or indirectly on claim 7 and should be allowed for the same reasons as discussed above with reference to claim 7. The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 8 to 11.

Rejection of Claims 18 to 21 and 31 to 32

In paragraph 7 of the Detailed Action, the Examiner has rejected claims 18 to 21 and 31

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to 32 under 35 U.S.C. 103(a) as being unpatentable over the Fujino *et al.* reference in view of Applicant's admitted prior art (Figure 1).

The Examiner has simply once again recited verbatim the arguments previously presented in the previous Office Action, and has not addressed Applicant's response in the previous response. As such, Applicant resubmits the previous discussion in favour of claims 18 to 21 and 31 to 32.

In particular, the Examiner is referring to Figure 1 of the present application as prior art in his rejection of claims 18 to 21 and 31 to 32. With respect, Figure 1 has been described as part of the Detailed Description of the Preferred Embodiments section on pages 6 to 8. In particular, Applicant's disclosure describes embodiments of the invention in the context of a multi-access wireless system. In making use of Figure 1 Applicant submits that the Examiner's conclusion of obviousness is based on improper hindsight reasoning (see MPEP 2145) *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971). In particular, the multi-access wireless system of Figure 1 is described on pages 6 to 8 of the specification and then a further description of the invention is given by way of example in relation to upstream transmission of voice (see for example page 8, lines 25 to 28). In the description, an example implementation is described in the context of the system of Figure 1 and Applicant submits that use of this hindsight information cannot be used to establish a *prima facie* case of obviousness.

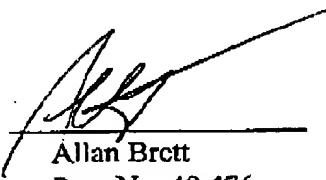
Furthermore, Applicant notes that each one of claims 18 to 21 and 31 to 32 depends directly or indirectly on one of claims 1 and 27. Applicant notes that the Examiner has cited both the Fujino *et al.* reference and the Kanerva *et al.* reference against base claims 1 and 27; however, the Examiner is now citing only the Fujino *et al.* reference and Applicant's admitted prior art against dependent claims 18 to 21 and 31 to 32, which each contain all of the limitations of one of base claims 1 and 27, without citing the Kanerva *et al.* reference. As such, Applicant submits that the Examiner's rejection of claims 18 to 21 and 31 to 32 is inappropriate. In particular, the Examiner has admitted that not all of the claim features of base claims 1 and 27 are found in the Fujino *et al.* reference and Applicant submits that these features are also not disclosed in Applicant's admitted prior art.

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The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 18 to 21 and 31 to 32.

In view of the foregoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,
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